

SYSTEM AND METHOD FOR A PORTABLE MULTIMEDIA CLIENT

CROSS-REFERENCE TO RELATED APPLICATIONS

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FIELD OF THE INVENTION

[0002] The invention generally relates to hand-held electronic devices, and more specifically to mobile wireless devices used to access information servers such as local area networks and the World Wide Web (i.e. "the Web") and mobile devices used to run software applications commonly run on desktop and notebook computers (such as Web browsers, spreadsheets, word processors, calculators, photo and video editors and viewers, stock tracking, accounting, etc.). Some aspects of the present invention also are applicable to mobile devices used to access portable television, digital content and multi-media (including electronic books [sometimes called e-Books], digital cameras, digital music or video players), hand-held electronic tools (including measurement tools), or electronic-mechanical tools (such as electronic drilling tools), among other types of hand-held devices.

BACKGROUND OF THE INVENTION

[0003] Major wireless service providers such as Sprint PCS, Verizon, and many others around the world, have spent tens of billions of dollars over the last several years upgrading their network infrastructure (and licensing spectrum) so that they can offer mobile Web services in addition to mobile voice services.

[0004] However, a much discussed problem within the mobile device and wireless service industries is that the "mobile Web" user experience on today's conventional pocket-size mobile devices (e.g. PDAs and smart-phones) is generally much less compelling, useful, and enjoyable than the "real Web" enjoyed regularly by nearly a billion people around the world on personal computers.

[0005] The mobile phone industry learned long ago that devices must be pocket-size and relatively affordable to become widely adopted by mobile service subscribers. However, because of display and man-machine-interface limitations of today's conventional pocket-size devices, most people consider the mobile Web experience on today's conventional pocket-size devices to be clunky, constrained, tedious, and scraped-down compared to the real Web experienced on desktop and notebook computers.

[0006] This problem is contributing to much slower adoption of mobile Web services than has occurred with mobile voice services over the last several years. (Some alternative mobile data services, such as "text-messaging", have become popular, because those simple applications are not significantly constrained by the display and man-machine-interface limitations of today's pocket-size mobile devices. Web access is a more demanding application.)

[0007] A typical wireless mobile device contains a radio, which allows Internet data to be transmitted to the device,

and a display that can present content on an active surface of the display. The displays are controlled by a display controller unit that may be implemented by readily available general or special purpose computers, whereby the implementation details are well known to those skilled in the art. Most Web pages are designed to be about 800 pixels wide. And on desktop computer monitors and laptop displays, users typically open their Web browsers to be around 800 pixels wide or wider and around 600 pixels tall. (Herein, a display, image or window that is 800 pixels wide by 600 pixels tall shall be referred to as 800×600 pixel.) But to keep mobile devices "pocket-size", most of today's mobile devices (such as data-enabled mobile phones and PDAs) use displays that are 320×480 pixel or smaller, which is too small to display more than about 1/3 of the 800×600 pixel area that people are used to seeing on desktop computers. That leads to an unsatisfying Web browsing experience, because users have to constantly scroll to get to the information they want. The low pixel count makes it hard for users to orient themselves and figure out where the information they want is hiding on a Web page since they can only look at the page "through a straw" (i.e. through a tiny window). This is why, in a review of a popular brand of hand-held computer with a 240×320 pixel display, in the Jul. 7, 2003, edition of eWeek, the reviewer noted that the device "still suffers (along with the rest of the hand-held browser world) from the fact that Web pages are not designed for low-resolution displays."

[0008] In a few cases, mobile device makers have tried to address this problem, while still keeping the device pocket-size, by using displays with very high pixel densities (i.e. very small pixels)—pixel densities over 175 pixels-per-inch (which is referred to by the nomenclature of 175 pixels-per-inch, 175 ppi, 175 dots-per-inch, or 175 dpi). But displays with pixel densities that high tend to make it very hard to read Web page content (particularly text) when the content is simply squeezed onto those displays because some text can become too tiny to read comfortably, if at all.

[0009] Some device makers use larger displays that have readable pixel densities (well under 175 ppi) and plenty of pixels (sometimes 800×600 pixel or more), but their devices (which typically include buttons and controls on the frames surrounding the displays) are too big to be considered "pocket size"—well over 6 inches in width or height or both.

[0010] Table 1 lists some examples of known hand-held devices, their display pixel counts, approximate pixel densities, and approximate display sizes (measured diagonally in inches). This list includes the approximate size and pixel density of each device's display only, not the full size of the complete device. The full size of each device is generally considerably larger than the display size, since the devices generally include frames with buttons, controls and other components embedded. For example, the Casio MPC-501 Mini-Tablet's display is 6.7" diagonal, and its frame includes many buttons to the right of the display, so the full device is 8.2 inches wide by 5.2 inches tall—much too big to be considered "pocket-size," by many users.